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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tsukasa Yagi

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EXAMINER

NGUYEN, HOAN C

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 09/891,997	Applicant(s) YAGI ET AL.	
	Examiner HOAN C. NGUYEN	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/19/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,27-29 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) 6-26 and 30-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,27-29 and 44-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/4/04 and 6/27/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to Amended claim 1 and New claims 44-46 based on the amendment filed on 19 July 2004 have been considered but are moot in view of the same ground(s) of rejection. Therefore, this is Final action.

Claims 6-26 and 30-43 are withdrawn from consideration. Therefore, ONLY claims 1-5, 27-29 and 44-46 are in the elected species.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A).

Yamagishi discloses (Fig. 1) all features in claims 1-3 except for inversely arrangement of the scanning and signal lines. Here, scanning electrodes are interchanged with signal electrodes in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes can be renamed as

signal electrodes and signal electrodes can be renamed as scanning electrodes.

The renamed electrodes will not change any property of display.

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 aligned in a first direction at a first pitch (between Y_i and Y_j , where i and $j = 1-7$), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between X_m and X_n , where n and $m = 1-3$) wider than the first pitch and each of the signal electrodes extending in the first direction.

wherein

- the scanning electrodes select a specified row of the pixel matrix by applying a voltage to the row and the signal electrodes apply a voltage to the columns of the pixel matrix- the voltage being in accordance with data signals to be input to the selected row.

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Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is $1/n$ of the second pitch, wherein n is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

Claim 45:

- there is inherently electric potential (voltage difference) between scanning electrodes and signal electrodes for modulating light by rotating liquid crystal molecules, therefore, scanning voltage should be higher or lower than signal voltage to generate the electric potential (voltage difference) between scanning electrodes and signal electrodes.

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Claim 46:

- a pulse form (waveform) of signal voltage applied by the signal electrodes is inherently variable in accordance with a data signals, which are sent conventionally by IC to pixels on non-selected scanning electrodes through signal electrodes, and crosstalk occurs. The IC inherently is connected to terminals X1=X3 to control signal voltage applied to the signal electrodes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

2. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) as applied to claims 1-5 above in view of Masazumi (US6414669B1).

Yamagishi fail to disclose features claims 27-29.

Masazumi teaches a liquid crystal display apparatus comprising the liquid crystal having a memory effect (claim 27) wherein the liquid crystal exhibits a cholesteric phase (claim 28) and comprises a nematic liquid crystal compound and a chiral agent (claim 29) retaining the display states of the liquid crystals if the deselect signal is held below the prescribed threshold voltage.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a liquid crystal display apparatus as Yamagishi disclosed with the liquid crystal having a memory effect (claim 27) wherein the liquid crystal exhibits a cholesteric phase (claim 28) and comprises a nematic liquid crystal compound and a chiral agent (claim 29) retaining the display states of the liquid crystals if the deselect signal is held below the prescribed threshold voltage. for achieving a further reduction in driving time as taught by Masazumi (col. 2 lines 33-34).

Response to Arguments

Applicant's arguments filed on 19 July 2004 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

Yamagishi teaches away from interchanging the scanning and signal electrodes as suggested by the Office Action. One of ordinary skill in the art would therefore not interchange Yamagishi's scanning and signal electrodes to arrive at the invention of claim 1. As Yamagishi teaches away from at least one limitation of claim 1 Yamagishi cannot render obvious the invention of claim 1.

Examiner's responses to Applicants' ONLY arguments are follows:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

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Interchange the scanning and signal electrodes can be rearranged **by renaming** Yamagishi's scanning electrodes to be signal electrodes and Yamagishi's signal electrodes to be scanning electrodes without changing display property. In another words, it does not matter how we name the stripe electrodes, the display result will stay more or less the same.

Applicant could provide data or reference with explanation to show that interchange or rename of scanning and signal electrodes will cause "a distortion of image" or "the extended blackout" as cited in Remarks.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOAN C. NGUYEN
Examiner
Art Unit 2871

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TARIFUR R. CHOWDHURY
PRIMARY EXAMINER